

immiscible organic phase and a poly[alk(en)yl] succinic anhydride based emulsifier such that droplets of gasser composition are distributed throughout the emulsion explosive composition; and

(c) allowing the inorganic nitrite and the ammonium species of the gasser solution to react and form gas which is distributed as bubbles throughout the emulsion to form the gassed emulsion explosive composition;

wherein the gasser solution is formed during or immediately before addition of the gasser solution to the emulsion explosive composition by mixing the inorganic nitrite, ammonium species and optionally the accelerator, and wherein the reaction between the inorganic nitrite and the ammonium species occurs within droplets of the gasser solution such that there is substantially no chemical attack on the emulsifier.

<sup>42</sup><sub>45</sub>. A method according to claim <sup>41</sup><sub>44</sub> wherein the emulsifier is a polyisobutylene succinic anhydride based emulsifier.

<sup>43</sup><sub>46</sub>. A method according to claim <sup>41</sup><sub>44</sub> wherein the gasser solution has a pH between pH 5 and pH 9.

<sup>44</sup><sub>47</sub>. A method according to claim <sup>43</sup><sub>46</sub> wherein the gasser solution has a pH between pH 6 and pH 8.

<sup>45</sup><sub>48</sub>. A method according to claim <sup>41</sup><sub>44</sub> wherein in forming the gasser solution the ratio of inorganic nitrite to ammonium species is between 10:1 and 1:10.

<sup>46</sup><sub>49</sub>. A method according to claim <sup>41</sup><sub>44</sub> wherein in forming the gasser solution the molar proportion of ammonium species is up to 10% greater than the molar proportion of inorganic nitrite.

<sup>47</sup>  
~~50.~~ A method according to claim <sup>41</sup>~~44~~ wherein in forming the gasser solution the ammonium species and inorganic nitrite are present in equimolar quantities.

<sup>48</sup>  
~~51.~~ A method according to claim <sup>41</sup>~~44~~ wherein in forming the gasser solution the ammonium species and inorganic nitrite are present in equimolar quantities and the gasser solution pH is between pH 5 and pH 9.

<sup>49</sup>  
~~52.~~ A method according to claim <sup>41</sup>~~44~~ wherein the ammonium species is selected from the group consisting of ammonium chloride, ammonium nitrate, ammonium chlorate, ammonium perchlorate and combinations thereof.

<sup>50</sup>  
~~53.~~ A method according to claim <sup>41</sup>~~44~~ wherein the ammonium species is formed in situ in the gasser composition.

<sup>51</sup>  
~~54.~~ A method according to claim <sup>41</sup>~~44~~ wherein the ammonium species comprises up to 25 wt. % of the gasser solution.

<sup>52</sup>  
~~55.~~ A method according to claim <sup>41</sup>~~44~~ wherein the inorganic nitrite is selected from the group consisting of alkaline earth nitrites, alkali metal nitrites and combinations thereof.

<sup>53</sup>  
~~56.~~ A method according to claim <sup>41</sup>~~44~~ wherein the inorganic nitrite comprises up to 25 wt. % of the gasser solution.

<sup>54</sup>  
~~57.~~ A method according to claim <sup>41</sup>~~44~~ wherein the gasser solution comprises an accelerator selected from the group consisting of thiourea, thiocyanate, iodide, cyanate, acetate and combinations thereof.

<sup>55</sup>  
~~58.~~ A method according to claim <sup>41</sup>~~44~~ wherein the accelerator comprises up to 25 wt. % of the gasser solution.

<sup>56</sup>  
~~59~~ A method according to claim <sup>51</sup>~~44~~ wherein the gassed emulsion explosive composition has a density of less than 1.0 g/cc.

<sup>57</sup>  
~~60~~ A method according to claim <sup>56</sup>~~59~~ wherein the gassed emulsion explosive composition has a density of less than 0.8g/cc.

<sup>58</sup>  
~~61~~ A method according to claim <sup>51</sup>~~44~~ which additionally comprises adding to the emulsion explosive composition a closed cell void material selected from the group consisting of glass microballoons, plastic microballoons and mixtures thereof.

<sup>59</sup>  
~~62~~ A method according to claim <sup>51</sup>~~44~~, wherein the emulsifier comprises a primary amine, secondary amine, amide, carboxylic acid, ester or anhydride group.

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